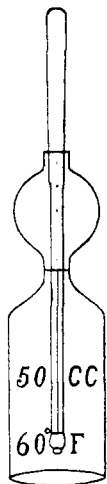


## VII.—A NEW SPECIFIC GRAVITY BOTTLE.

BY DR. W. H. GREGG.

In taking the specific gravity of corrosive and volatile fluids, the ordinary specific gravity bottle presents some objections. The stoppers are usually perforated, with a view of affording a full passage for the excess of fluid when the stopper is inserted into its place. This is very objectionable with corrosive fluids, such as oil vitriol, and such volatile fluids as ether, chloroform, etc.



For such substances, a modification of Regnault's specific gravity bottle is presented, which does not allow any overflow of its contents when the stopper is inserted, and at the same time a thermometer is at hand to note the temperature. Such a bottle is shown in the figure. The neck is drawn out as in Regnault's, and marked to indicate its capacity. A short distance above the mark the neck swells out sufficiently to contain an amount of fluid equal to that displaced by the thermometer tube. The thermometer is attached to the stopper which is ground into the neck at the top as on the ordinary bottle, to prevent loss by evaporation.

Elmira, N. Y.

## VIII.—ON THE SOLVENT ACTION OF CARBONIC ANHYDRIDE IN SOLUTION, UPON VARIOUS BODIES, UNDER DIFFERENT CONDITIONS AS TO TEMPERATURE AND PRESSURE.

BY J. H. TUCKER, PH.D.

It is well known that carbonic acid gas in solution, is capable of exerting a great chemical influence upon the materials forming the earth's crust, and as the air and all natural waters are impregnated with it, the range of its action is necessarily extensive. Among the bodies thus acted upon by carbonic acid, may be mentioned the carbonates and silicates as the most important. The insoluble carbonates are dissolved, soluble bicarbonates being formed, the extra equivalent of carbonic acid being given up again on heating the solution. The silicates are decomposed, the base is converted into carbonate or acid carbonate, the silica remaining insoluble; the decomposition or "rotting" of feldspathic rocks is a prominent example of this. In addition to the compounds mentioned, the tribasic phos-